Figure 1. Method of Preparation and Reactions Screened for Various Ligands.

OMe
$$P(t-Bu)_2 \qquad \text{Li}$$

$$S,A$$

$$P(t-Bu)_2 \qquad S,A$$

$$PCy_2 \qquad \text{Li}$$

$$S,A,K$$

$$PCy_2 \qquad \text{Li}$$

$$S,A$$

$$P(t-Pr)_2 \qquad \text{Li}$$

$$S,A$$

$$PCy_2 \qquad \text{Li}$$

$$S,A$$

$$P(t-Pr)_2 \qquad \text{Li}$$

$$A$$

$$P(t-Pr)_2 \qquad \text{Li}$$

$$A$$

$$P(t-Pr)_2 \qquad \text{Li}$$

$$A$$

$$P(t-Pr)_2 \qquad \text{Li}$$

$$A$$

OMe PCy ₂	Li A
P(f-Bu) ₂ OEt	Mg S
P(#Bu) ₂	Mg S,A
P(t-Bu) ₂	Mg S,A
OMe P(f-Bu) ₂ OMe	Li S
P(f-Bu) ₂ Me Me	Mg S,D
P(t-Bu) ₂	Li A
Me PO t-Bu	S

Legend

Method of Preparation: Li= made from organolithium reagent Mg= made from Grignard reagent Reactions Screened:
S=Used for Suzuki Coupling
A=Used for amination
D=Used for diaryl ether synthesis
K=Used for ketone arylation
H=Used for Heck reaction